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1: Front Biosci. 2005 Sep 1;10:2397-411.

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The Na/K-ATPase and its isozymes: what we have learned using the baculovirus expression system.

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The use of the baculovirus expression system for heterologous protein expression in insect cells has been of immense value in understanding many different structural and functional aspects of the Na/K-ATPase, an enzyme that catalyses the active exchange of cytoplasmic Na⁺ for extracellular K⁺ across the plasma membrane of most cells. The advantage of using insect cells is that they provide an eukaryotic expression system able to produce large amounts of active recombinant Na/K-ATPase for biochemical studies. In addition, the host cell lines commonly used (Sf-9, Sf-21 and High Five) have very little or no Na/K-ATPase, offering an environment in which the exogenously expressed enzyme can be studied without the interference of the high Na pump background activity common to other cells. The present article reviews the advances obtained in the field of the Na/K-ATPase by using the baculovirus expression system, including the biosynthesis, assembly, intracellular trafficking of the alpha and beta subunits of the enzyme, their interaction with other proteins, and the structure, function and regulation of the various isozymes of the transporter.

PMID: 15970503 [PubMed - in process]

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